

**Commonwealth of Kentucky
Division for Air Quality**

PERMIT STATEMENT OF BASIS

TITLE V/SYNTHETIC MINOR, CONSTRUCTION/OPERATING (DRAFT PERMIT) NO. V-06-046

DART Polymers, Inc.

OWENSBORO, KY

JULY 10, 2007

RALPH GOSNEY, P.E., REVIEWER

SOURCE ID: 21-059-00131

AGENCY INTEREST #: 895

ACTIVITY ID: APE20050002

SOURCE DESCRIPTION:

Dart Polymers, Inc. (Dart) owns and operates a polystyrene beads and pellets manufacturing plant and an impregnation facility in Owensboro, Kentucky. This source is a major source for VOCs and HAPs. The primary activity at the Owensboro facility is the polymerization of polystyrene, which falls under the SIC code of 2821. There are three primary production processes at the facility including Polystyrene Pellets (Plant 1 - Mass Plant), Impregnated Polystyrene Beads (Plant 2 - Impregnation Plant), Polystyrene Beads (Plant 3 - Suspension Plant).

The Mass plant produces crystal and high impact polystyrene on three polymerization lines. Lines 1 and 3 are continuous polymerization lines, and line 2 is a batch line. Rubber solution is prepared on site as a feedback for all three mass plant polymerization lines. Styrene is pumped from storage to one of three rubber dissolvers. Bales of rubber are grounded and transferred into dissolvers. After the rubber is dissolved in styrene, the solution is pumped to a rubber solution storage tank. In the continuous polymerization process, styrene, recycle (ethyl benzene and styrene), rubber solution, and mineral oil, are pumped continuously through feed parameters where the temperature of mix is increased in a pre-grafting reactor, where initial polymerization occurs in the presence of an organic peroxide initiator dissolved in ethyl benzene, which is also pumped continuously into the reactor. From the pre-grafting reactor, the partially polymerized solution is pumped to a second pre-polymerization reactor, where additional polymerization occurs. A solution of antioxidant and styrene is continuously pumped to this reactor in addition to the feed stream from the pre-grafter. Temperature control is maintained under a slight vacuum by the reflux of the reactor contents. The partially polymerized mixture then flows into a tower reactor(s) where the product steam reaches final conversion. The product steam then passes through a preheater and two devolatilizers in series, operated under vacuum, which extracts the remaining styrene, ethylbenzene, and oligomers. The extracted vapor is then condensed and returned to the process feed as recycle.

In the batch polymerization process, the feed streams which include styrene, dissolved rubber solution, ethylbenzene, mineral oil and initiator are combined in the prebatch/prepoly reactors. The reactants are then transferred to a second reactor where the bulk of the polymerization occurs. After polymerization is complete, the molten polymer is pumped, through a holding tank, to a preheater then devolatilizer where residual styrene, ethylbenzene, and oligomers are stripped from the polystyrene under vacuum. The extracted vapor is condensed then recycled into the feed mixture for the next batch. The remaining molten polystyrene is drawn in to strands, cooled in a water batch and cut into pellets before being transferred to storage silos. Lines 1 and 2 were originally built in 1977.

Line 3 was originally built in 1984. All three lines were batch lines when originally installed. Line 3 was converted to continuous processing in 1994, and was also expanded in 1999. Line 1 was converted to a continuous process in 2004. The line 1 conversion was completed after the initial Title V permit was issued, and was approved by the Division on December 19, 2003 as Revision 1 of the Title V permit.

The Impregnation process begins by combining polystyrene beads, water and surfactants in a premix tank, and then transferring the mixture to one of the three reactors. Pentane is added to the reactor as an expanding agent. Upon completion of the impregnation process, the bead-water slurry is transferred to one of two batchout tanks. At this point, hydrochloric acid is added, and external heat exchanger circulating system employed. The slurry may be transferred to a holding tank to one of the three dryer/screening lines. Each line consists of a Carter-Day dryer, flash dryer, cyclones and screener. The dried product is transferred to one of two packaging silos. Each packaging silo in turn feeds a blender and a box loading section. Zinc stearate and proprietary liquids are added during the blending process. The Impregnation plant was originally constructed in 1987 and expanded in 1989. A drying/holding tank was added in 2000. No expansions have occurred since the original Title V permit was issued.

The Suspension plant is a batch polymerization process that produces crystal polystyrene beads. Styrene monomer, deionized water, initiators and other additives are combined in one of four reactors. The reactor contents are heated to reaction temperature and polymerization occurs. After polymerization is completed (approximately 12.5 hours), the reactor is pressurized and the final polystyrene-water slurry is transferred into one of two batchout tanks. Hydrochloric acid may be added to wash and strip additives. After the slurry cools in the batchout tanks, it is fed to a centrifuge where most of the water is removed and decanted to an effluent tank. The water is screened to remove any polystyrene beads, which are recycled into the batchout tanks. The polystyrene beads are transferred from the centrifuge to fluid bed dryers where final drying occurs. After leaving the dryers, the polystyrene beads are screened and separated into different product streams, and transferred to storage silos. The final product may be shipped to customers from the truck loading station, used as raw material in the impregnation plant, or further processed at the extruder lines. The Suspension plant was originally constructed in 1989. No expansions have occurred since the original Title V permit was issued.

In addition, the source operates a tank farm for raw materials, and three boilers for process heat.

The potential to emit, as defined in 401 KAR 52:001, Section 1 (56) of volatile organic compounds (VOC) as a regulated air pollutant is greater than one hundred (100) tons per year; and the potential to emit of single and combined hazardous air pollutants (HAPs) is greater than 10 and 25 tons per year, respectively. Therefore, the source is a major source and is subject to the provisions of 401 KAR 52:020. The original Title V Permit No. V-00-003 was issued on June 4, 2001 to this source.

This is a Title V renewal permit issued for this source.

COMMENTS:

- (1) Emission Units: The plant consists of natural gas and/or fuel oil fired boilers, batch reactors, and tank farm as specified below:

- (a) 01 – Batch Process Vents, Plant 1 – Mass Plant
Primary Product: Polystyrene Pellets
Control Equipment: None
Description: Group 2 Process vents per 40 CFR 63 (NESHAP, Subpart JJJ)

Emission Point: M11 (Line 2 Vent)

Maximum Rated Capacity: 2,500 lbs/hr (average hourly rated capacity based on maximum number of batches per year)

- Description: 1. Pre-batch Reactor (R-2110), installed in 1976
2. Pre-poly Reactor (R-2210), installed in 1976
3. U-tube Reactor (R-2310), installed in 1976

Emission Point: M06 (Anti-oxidant Tank Vent)

Maximum Rated Capacity: 8.852 tons/hr (Rubber Dissolvers) and 0.1289 tons/hr (Anti-oxidant Tank) (annualized hourly rate based on maximum number of batches per year and pounds material per batch)

- Description: 3. 6,000 gallon Rubber Dissolver # 1 (D-0410), installed in 1984
4. 6,000 gallon Rubber Dissolver # 1 (D-0420), installed in 1984
5. 6,000 gallon Rubber Dissolver # 1 (D-0430), installed in 1994
6. Anti-oxidant Tank (TK-0710), installed in 1994

Emission Point: M08A (Take Off Lines Vent)

Description: 7. Die Head Line 2

- (b) 02 – Batch Process Vents, Plant 3 – Suspension Plant
Primary Product: Polystyrene Beads
Control Equipment: None
Description: Group 2 Process vents per 40 CFR 63 (NESHAP, Subpart JJJ)

Emission Point: S06 (Roof Vent)

Maximum Rated Capacity: 7.0 tons/hr (annualized hourly rate based on maximum number of batches per year and pounds material per batch)

- Description: 1. Two (2) 20,000 gallon batch reactors (R-4110 & R-4210), installed in 1989
2. One (1) 50,000 gallon batchout tank (D-4510)

Emission Point: S07 (Roof Vent)

Maximum Rated Capacity: 7.0 tons/hr (annualized hourly rate based on maximum number of batches per year and pounds material per batch)

Description: 1. Two (2) 20,000 gallon batch reactors (R-4310 & R-4410), installed in 1989
2. One (1) 50,000 gallon batchout tank (D-4610)

(c) 03 – Continuous Process Vents, Plant 1 – Mass Plant

Primary Product: Polystyrene Pellets

Control Equipment: None

Description: Group 2 Process vents per 40 CFR 63 (NESHAP, Subpart JJJ)

Emission Point: M07 (Vacuum Pump Vent)

Maximum Rated Capacity: 19,200 lbs/hr (6,300 lb/hr for Line 1; 2,520 lb/hr for Line 2; and 10,380 lb/hr for Line 3)

Description: EP M07 exhausts the following equipment:

1. Line 1 Pregrafter Reactor (R-1210)
2. Line 1 Prepoly Reactor (R-1310) (vents through Prepoly Condenser)
3. Line Prepoly Condenser (C-1310)
4. Line Devolatizer 1 (D-1710) (vents through DV-1 Condenser System)
5. DV-1 Condenser System (C-1810) (vents through D-1110)
6. Line 1 Recycle Tank (D-1110)
7. Line 1 Devolatizer 2 (D-1720) (vents through DV-2 Condenser System)
8. DV-2 Condenser System (C-1820)
9. Line 3 Pregrafter Reactor (R-3210)
10. Line 3 Prepoly Reactor (R-3310) (vents through Prepoly Condenser)
11. Line 3 Prepoly Condenser (C-3315)
12. Line 3 Tower 2 Reactor (R-3510)
13. Line 3 Devolatizer 1 (D-3710) (vents through DV-1 Condenser)
14. Line 3 DV-1 Condenser (C-3810) (vents through D-3110)
15. Line 3 Recycle Tank (D-3110)
16. Line 3 Devolatizer 2 (D-3820) (vents through DV-2 Condenser)
17. DV-2 Condenser (C-3820)
18. Line 2 DV Condenser (C-2710)
19. Line 2 Condensate Tank (D-0660)

Emission Point: M08B (Take Off Lines Vent)

Description: EP M08B exhausts the following equipment:

20. Die Head Line 3
21. Die Heads 1 and 2 – Line 1

The following equipment is part of the continuous polymerization lines, however, no HAPs are emitted to atmosphere from this equipment:

Continuous Polymerization Lines Equipment

1. Line 1 Feed Preheaters (E-1010 and E-1020)
2. Line 1 Tower Reactor (R-1410)
3. Line 1 DV Preheater (E-1610)
4. Line 3 Feed Preheaters (E3010), E-3020, and E-3030)
5. Line 3 U-Tube Reactor (R-3410)
6. Line 3 DV Preheater (E-3610)

- (d) 04 – Storage Vessels, Plant 1 – Mass Plant (Polystyrene Pellets)
Control Equipment: None

Emission Point	Description*	Capacity (gallons)	Construction Date
M01	Styrene Tank (TK-0340)	46,000	07/07/78
M02	Rubber Solution Tank (TK-0440) (Group 2 Storage Tank)	51,000	07/23/84
M03	Rubber Solution Tank (TK-0450) (Group 2 Storage Tank)	51,000	07/23/84
M04	Rubber Solution Tank (TK-0460) (Group 2 Storage Tank)	30,000	01/01/94
M05	Rubber Solution Tank (TK-0470) (Group 2 Storage Tank)	30,000	01/01/94
M09	1. Styrene Hill Tank (TK-0040) 2. Styrene Hill Tank (TK-0050)	1,250,000 1,250,000	03/30/99 03/30/99

* Each tank is a fixed-roof tank

- (e) 05 – Storage Vessels, Plant 3 – Suspension Plant (Polystyrene Beads Production)
Control Equipment: None

Emission Point	Description*	Capacity (gallons)	Construction Date
S01	Hill Styrene Monomer Tank (TK-0010)	700,000	11/17/85
S02	Hill Styrene Monomer Tank (TK-0020)	700,000	04/17/89
S03	Hill Styrene Monomer Tank (TK-0030)	850,000	10/28/94
S04	Styrene Monomer Day Tank (TK-0310)	100,000	07/18/91
S05	Styrene Monomer Batch Tank (TK-0320)	14,000	04/26/89

* Each tank is a fixed-roof tank

- (f) 06 – Shore line Storage Vessels
Control Equipment: None

Emission Point	Description*	Capacity (gallons)	Construction Date
X01	Shoreline Styrene Monomer Day Tank (TK-0300)	300,000	07/07/78
X02	Shoreline Styrene Monomer Day Tank (TK-0305)	300,000	07/07/78

* Each tank is a fixed-roof tank

- (g) 07 – Pipeline Equipment

Emission Point: 07 - Plant 1 and Plant 3

Description: Fugitive emissions from Process and Storage Pipeline Equipment including Light Liquid Pumps, Gas Valves, Gas Flanges, Gas Open Ended Valves, Gas PSVs, Liquid Valves, and Liquid Flanges. The component count includes 867 valves, 1,476 connectors (flanges), and 52 pump seals.*

*The equipment component count listed above reflects an accurate count of the equipment as of the date of issuance of this permit but is not intended to limit the permittee to the exact numbers specified. The permittee may add or remove pipeline equipment without a permit revision as long as the equipment continues to comply with the requirements listed below.

- (h) 08– Pipeline Equipment

Emission Point: 08 - Plant 2

Description: Fugitive emissions from Process and Storage Pipeline Equipment including Light Liquid Pumps, Gas Valves, Gas Flanges, Gas Open Ended Valves, Gas PSVs, Liquid Valves, and Liquid Flanges. The Plant 2 component count includes 176 valves, 663 connectors (flanges), and 8 pump seals.*

*The equipment component count listed above reflects an accurate count of the equipment as of the date of issuance of this permit but is not intended to limit the permittee to the exact numbers specified. The permittee may add or remove pipeline equipment without a permit revision as long as the equipment continues to comply with the requirements listed below.

- (i) 09 - Miscellaneous Process and Non-Process Equipment (Not Subject to 40 CFR 63 Subpart JJJ):

Emission Point: 08 - Plant 3 – Suspension Plant (Polystyrene Beads Production)

Description: Process and Non-Process Equipment at Plant 3 - Suspension Plant that is not subject to 40 CFR 63, Subpart JJJ, including:

1. Two (2) Suspension Batch out Tanks TK-102 and TK-103, Stack: Roof Vent
2. 12,500 gallon Hydrochloric Acid Storage Tank TK-6100

Construction Date: 09/25/98

Control Equipment for HCl emissions from Emission Unit 1: Submerged Fill Pipe
Control Equipment for HCl emissions from Emission Unit 2: Packed Column Scrubber

(j) 10 – Carbon Adsorber, Plant 2 – Impregnated Polystyrene Beads Production

Primary Product: Expanded Polystyrene

Control Equipment: One (1) Carbon Adsorber (pentane recovery system) with a
VOC control efficiency of at least 95%

Maximum Rated Capacity: 8.156 tons/hr

Emission Point: 10 (Stack 101)

Description: EPS production line using Carbon Adsorber 01 or Carbon Adsorber 02 for pentane recovery with the following equipment connected to, and exhausting at, vent I01 or vent I02:

1. Three (3) Reactors (R-7110, R-7210, and R-7310), each is a 10,000 gallons pressure drums, and each constructed on 01/30/87, 04/07/89, and 10/04/89, respectively.
2. Two (2) Batchout tanks (D-7510 and D7520), each with a 20,000 gallons capacity and constructed on 01/30/87 and 10/04/89, respectively.
3. Two (2) Pentane storage tanks (TK-6410 and TK-6420), each with a 30,000 gallons capacity and both constructed on January 30, 1987.
4. Pentane weigh tank (D-6420)
5. Pentane Reclaim storage tank (TK-6430), with 8,000 gallon capacity and constructed on 12/20/89
6. Drying tank (TD-7530), constructed on 03/21/00

Description of the MODIFICATION: MODIFICATION 01 is a VOC emissions increase affecting EP 10, emission units 2, 3, 5 and 6, as approved by the Division on December 19, 2003 as Revision 1 to Permit Number V-00-003. VOC emissions from EP 10 emission units 2, 3, 5 and 6 shall be controlled by the Carbon Adsorber (01 or 02) with a minimum control efficiency of 95%.

(k) 12 – Two (2) Boilers, Plant 2 – Impregnated Polystyrene Beads Production

Emission Point: 12A

Description: One (1) Boiler (BLR-8840)

Maximum Capacity: 12.553 mmBtu/hr each

Construction Date: 01/30/87

Primary Fuel: Natural Gas

Secondary Fuel: No. 2 fuel oil

(l) 13 – Two (2) Boilers, Plant 3 – Polystyrene Beads Production

Emission Point: 13A

Description: One (1) Boiler (BLR-8820)

Maximum Capacity: 29.291 mmBtu/hr each

Construction Date: 04/03/89

Primary Fuel: Natural Gas
Secondary Fuel: No. 2 fuel oil

Emission Point: 13B

Description: One (1) Boiler (BLR-8830)
Maximum Capacity: 29.291 mmBtu/hr each
Construction Date: 04/03/89
Primary Fuel: Natural Gas
Secondary Fuel: No. 2 fuel oil

- (m) 14 – One (1) Boiler

Emission Point: 14

Description: One (1) Boiler (BLR-8810)
Maximum Capacity: 25.106 mmBtu/hr each
Construction Date: 05/30/90
Primary Fuel: Natural Gas
Secondary Fuel: No. 2 fuel oil

- (n) 15 - Styrene Bulk Truck Loading Operation

Emission Point: 15

Description: Styrene Bulk Truck Loading Rack
Control Device: Vapor balancing system with control efficiency of 99.9%
Maximum Capacity: 3,000,000 gallons per year
Construction Date: 1989

- (o) The source contains insignificant activities, as defined in 401 KAR 52:030, Section 6. Section C of the permit lists all insignificant activities.

- (2) Emission factors and their source:

VOC/HAP emissions from polymerization processes were calculated based on use of AP-42 factors, stack test data and mass balance, and using the requisite computational methodologies specified in 40 CFR 63.1323(b) (NESHAP, Subpart JJJ) as applicable. AP-42, Chapter 1.4, Tables 1.4-1, -2 and -3 were used to determine the natural gas combustion emissions from the boilers. Potential VOC emissions from the storage tanks were calculated based on AP-42, Chapter 7. See the detailed emission calculations in the Pollutants of Concern (POC) tables for more information.

- (3) Type of Control and Efficiency:

Plant 2 – Impregnated plant is equipped with two (2) carbon adsorbers controlling VOC (pentane) emissions through the recovery of pentane. The VOC control efficiency is 95%. Compliance demonstration stack testing conducted on June 26, 2001 confirmed the control efficiency. There are no other control devices at the source.

- (4) Existing Approvals:

- (a) *Title V Permit No. V-00-003, issued on June 4, 2001*

This permit was the first Title V permit for this source which consolidated all the

previous construction permits. The permit specified terms and conditions for the operation of the polystyrene pellets and beads manufacturing plant.

(b) *Minor Permit Revision, Log # 55337/55642, issued on December 19, 2003*

This minor permit revision was regarding the conversion of Polystyrene Mass Plant Line 1 from batch to continuous process and de-bottle necking project in the Impregnation Plant.

(5) New Activities/Equipment Receiving Approval:

Pursuant to 401 KAR 52:020, Section 3(2), the following modification has been requested and approved during this review:

(a) *Request for minor revision to add two (2) new rubber dissolvers to Plant 1 (Mass Plant) submitted to KDAQ on December 2, 2005*

Plant 1 (Mass Plant) currently has three (3) rubber dissolvers listed under emission point M06. Dart has requested to replace the existing three (3) rubber dissolvers with two (2) new rubber dissolvers. The potential VOC emissions from the two (2) new dissolvers will be 3.51 tons per year. Overall PTE of VOC of the source will decrease by 0.33 tons per year as a result of this modification. This modification will not trigger any new applicable requirements for the rubber dissolvers, as the two (2) new rubber dissolvers will be subject to existing permit requirements for 40 CFR 63, Subpart JJJ. The new units will be designated as a new affected source as defined in 40 CFR 63.1310(a)(3). The proposed start-up date of the two (2) new rubber dissolvers is in 2007. Following is the description of new rubber dissolvers:

01 – Batch Process Vents, Plant 1 – Mass Plant

Primary Product: Polystyrene Pellets

Control Equipment: None

Description: Group 2 Process vents per 40 CFR 63 (NESHAP, Subpart JJJ)

Emission Point: M06A (Rubber Dissolvers)

Maximum Rated Capacity: 8.10 tons/hr (annualized hourly rate based on maximum number of batches per year and pounds material per batch)

Description: 1. 20,000 gallon Rubber Dissolver # 1 (D-0425), to be installed in 2007
2. 20,000 gallon Rubber Dissolver # 2 (D-0435), to be installed in 2007

(b) *Request for minor revision submitted by permittee to KDAQ on October 26, 2006.*

Plant 3 (Suspension Plant) currently has four (4) batch reactors listed under emission points S06 and S07. Dart is proposing to add one additional batch reactor (EP S08) to the process. The potential styrene (VOC/HAP) emissions from this new fifth reactor would be 3.20 tons per year. Also, the styrene emissions from the existing storage tanks will also increase by 0.93 tons per year due to increased throughput.

Overall increase in VOC/HAP PTE from this modification will be 4.13 tons per year. Also, the addition of this new reactor will not trigger any new applicable requirements. The new reactor (EP S08) will be subject to the requirements of 40 CFR 63, Subpart JJJ and will be designated as an "existing" affected source, pursuant to 40 CFR 63.1310(i)(2)(iii). The proposed startup date of the new reactor is October, 2007. Following is the description of the new reactor:

02 – Batch Process Vents, Plant 3 – Suspension Plant

Primary Product: Polystyrene Beads

Control Equipment: None

Description: Group 2 Process vents per 40 CFR 63 (NESHAP, Subpart JJJ)

Emission Point: S08 (Roof Vent)

Maximum Rated Capacity: 3.71 tons/hr (annualized hourly rate based on maximum number of batches per year and pounds material per batch)

Description: 1. One (1) 20,000 gallon batch reactor (R-4610), installed in 2007
2. One (1) 50,000 gallon batchout tank (D-4910)

(c) *Request for minor revision submitted by permittee to KDAQ on February 5, 2007.*

The source has proposed to expand the capacity of its polystyrene impregnation plant (Plant 2). Currently, the impregnation plant consists of three reactors capable of handling of 10 batches per day. The proposed expansion will involve the addition of a new premix tank, a fourth impregnation reactor, a new batchout and drying tank system and a new blending and packaging station. The primary raw materials for the process (polystyrene beads and pentane) will be charged to the new process vessels from existing silos and storage tanks. In addition, an existing 12.355 mmBtu/hr boiler (EP 12) will be replaced with a new 33.5 mmBtu/hr boiler (EP 12B) to meet additional steam requirements. A new solvent recovery system will be installed to capture pentane emissions from the new reactor and batchout vessels. This solvent recovery system will be a carbon adsorption system, similar in design and capacity to the existing system. The proposed expansion will allow an additional 3 batches of impregnated polystyrene beads to be produced on site for a total of 13 batches per day.

All emissions from the proposed process equipment expansion will be in the form of VOC (as pentane). Specifically, there will be a slight increase in emissions from the existing pentane underground storage tanks due to increased throughput, as well as emissions of pentane from the new reactor, batchout and drying tanks, bead dryers, and packaging stations. Pentane emissions from the underground tanks, the reactor, and the batchout and drying tanks will be collected and recovered by the proposed carbon adsorption system. Tank emissions for the existing underground storage tanks (TK-6410, TK 6420, and TK-6430) were calculated using AP-42 methods. The maximum potential increase based on an additional 3 batches per day will be 541,508 gallons per year. This results in a total increase in tank emissions of 0.367 tons per year before control by the carbon adsorption system. VOC emissions from

the reactors are calculated based on the mass balance. The existing maximum potential to emit for pentane after control, as submitted with the Title V renewal application is 87.2 tons per year. The maximum potential to emit after the proposed expansion (after control with the carbon adsorption unit), based on additional 3 batches per day, will be 113.8 tons per year, an increase in maximum PTE of 26.6 tons per year.

Also, the plant expansion will not trigger any new applicable requirements. The new equipment will be subject to the existing permit requirements of 40 CFR 60 Subpart DDD (see below). The proposed startup date of the new reactor and associated equipment is first quarter of 2008. Following is the revised description of the impregnation plant after the expansion project:

10 – Carbon Adsorber, Plant 2 – Impregnated Polystyrene Beads Production

Primary Product: Expanded Polystyrene

Control Equipment: Two (2) Carbon Adsorbers (pentane recovery systems), each with a VOC control efficiency of at least 95%

Emission Point: 10 (Stacks 101 and 102)

Maximum Rated Capacity: 9.01 tons/hr, total Plant 2

Description: EPS production line using Carbon Adsorber 01 or Carbon Adsorber 02 for pentane recovery with the following equipment connected to, and exhausting at, vent I01 or vent I02:

1. Three (3) Reactors (R-7110, R-7210, and R-7310), each is a 10,000 gallons pressure drum, constructed on 01/30/87, 04/07/89, and 10/04/89, respectively.
2. Two (2) Batchout tanks (D-7510 and D7520) with 20,000 gallons capacity each, and constructed on 01/30/87 and 10/04/89, respectively.
3. Two (2) Pentane storage tanks (TK-6410 and TK-6420), with 30,000 gallons capacity each, and both constructed on January 30, 1987.
4. One (1) Pentane weigh tank (D-6420), installed 1987
5. Pentane Reclaim storage tank (TK-6430), with 8,000 gallon capacity and constructed on 12/20/89.
6. Drying tank (D-7530), constructed on 03/21/00.
7. One (1) Reactor (R-7150), with a 10,000 gallon pressure drum, to be constructed in 2007.
8. One (1) Batchout tank (D-7550), with a 20,000 gallons capacity, to be constructed in 2007.
9. One (1) Pentane weigh tank (D-6450), to be constructed in 2007.
10. Drying tank (D-7570), to be constructed in 2007.
11. Two (2) HCl scrubbers.

MODIFICATION 01: MODIFICATION 01 is a VOC emissions increase affecting EP 10, emission units 2, 3, 5 and 6, as approved by the Division on December 19, 2003 as Revision 1 to Permit Number V-00-003. VOC emissions from EP 10 emission units 2, 3, 5 and 6 shall be controlled by the Carbon Adsorber (01 or 02) with a minimum control efficiency of 95%.

MODIFICATION 02: MODIFICATION 02 is a VOC emissions increase affecting EP 10, emission units 7, 8, 9 and 10, and EP 12B (Boiler BLR-8860 listed in subsequent Section B), as approved by the Division upon issuance of this Permit Number V-06-046. VOC emissions from EP 10 emission units 7, 8, 9 and 10 shall be controlled by the Carbon Adsorber (01 or 02) with a minimum control efficiency of 95%.

Emission Point: 12B

Description: One (1) 800 hp Boiler (BLR-8860)
Maximum Capacity: 33.50 mmBtu/hr each
Construction Date: to be installed in 2007
Primary Fuel: Natural Gas
Secondary Fuel: No. 2 fuel oil

(6) **Applicable Regulations:**

- (a) 401 KAR 60:005, Sections 2 and 3(1)(o) incorporates by reference *40 CFR Part 60.110 to 60.113(Subpart K)*, “Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978”

The requirements of 40 CFR 60, Subpart K are not included in the permit for storage tanks at this source because the material stored in the storage tanks is not a petroleum liquid as defined in 40 CFR 60.111(b).

- (b) 401 KAR 60:005, Sections 2 and 3(1)(p) incorporates by reference *40 CFR Part 60.110a to 60.115a (Subpart Ka)*, “Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984”

The requirements of 40 CFR 60, Subpart Ka are not included in the permit for storage tanks at this source because the material stored in the storage tanks is not a petroleum liquid as defined in 40 CFR 60.111a(b).

- (c) 401 KAR 60:005, Sections 2 and 3(1)(q) incorporates by reference *40 CFR Part 60.110b to 60.117b(Subpart Kb)*, “Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984”

Storage Tanks not subject to 40 CFR 60, Subpart Kb:

The requirements of 40 CFR 60, Subpart Kb are not included in the permit for storage tanks identified as TK-0340, TK-0440, TK-0450, TK-0300, and TK-0305 (EP M01, M02, M03, X01, X02) because each was constructed on or before the rule applicability date of July 23, 1984, and they have not been approved for modification or reconstruction.

The requirements of 40 CFR 60, Subpart Kb are not included in the permit for storage tanks identified as TK-0320 and TK-6430 (EP S05 and 10) because the

storage capacity of each tank is less than the rule applicability threshold of 75 cubic meters (m^3) (19,812 gallons). Storage tank TK-0320 (EP S05) was listed in the Title V Permit (V-00-003) as being subject to Subpart Kb. However, due to the October 15, 2003 rule revision which exempts storage tanks with capacities less than 75 m^3 from the rule requirements, this tank is no longer subject to Subpart Kb.

The two (2) 30,000 gallon rubber solution storage tanks (TK-0460 and TK-0470; EP M04 and M05, respectively) are not subject to the requirements of 40 CFR 60.110b, Subpart Kb. Although they were each constructed after July 23, 1984, each tank has a storage capacity greater than 75 m^3 but less than 151 m^3 and the material stored in each tank has a maximum true vapor pressure of less than 15 kPa. Therefore, pursuant to 40 CFR 60.110b(b), these tanks are not subject to this rule.

Storage tanks identified as TK-0040, TK-0050, TK-0010, TK-0020, TK-0030, TK-0310, TK-0320 (EP M09, EP S1 through S5), each having a storage capacity of greater than 151 m^3 (39,889 gallons) and stores organic liquid with a maximum true vapor pressure less than 3.5 kPa, therefore, pursuant to 40 CFR 60.110b(b), these storage tanks are not subject to this rule.

Storage Tanks subject to 40 CFR 60, Subpart Kb:

Storage tanks identified as TK-6410 and TK-6420 (EP 10) are subject to the requirements of Subpart Kb since each tank stores pentane with a vapor pressure greater than 15 kPa and has a storage capacity greater than 75 m^3 but less than 151 m^3 . Pursuant to 40 CFR 60.112a(a), the permittee shall equip these storage tanks with either an internal floating roof, external floating roof, a control device with closed vent system or equivalent system. Storage tanks TK-6410 and TK-6420 (EP 10), are each equipped with a closed vent system and carbon adsorber as a control device, and are subject to the related provisions of Subpart Kb as contained in the permit.

- (d) 401 KAR 59:050, New Storage Vessels for Petroleum Liquids
Storage tanks at this source are not subject to this rule since the stored materials are not a petroleum liquid, pursuant to 401 KAR 59:050 Section 2 (Definitions).
- (e) 401 KAR 61:050, Existing Storage Vessels for Petroleum Liquids
Storage tanks at this source are not subject to this rule since the stored materials are not a petroleum liquid, pursuant to 401 KAR 61:050 Section 1 (Definitions).
- (f) 401 KAR 60:005, Sections 2 and 3(1)(e) incorporates by reference *40 CFR Part 60.40c to 60.48c (Subpart Dc)*, “Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units”

The requirements of Subpart Dc are not included in the permit for the three (3) natural gas fired boilers identified as BLR-8840, BLR-8820, and BLR-8830 (EP 12A, EP 13A and EP 13B) since each was constructed before the rule applicability date of June 9, 1989, and they have not been approved for modification or reconstruction.

Two (2) natural gas fired boilers identified as BLR-8860 (EP 12B) and BLR-8810 (EP 14), firing No. 2 fuel oil as a backup fuel, are subject to the requirements of Subpart Dc, because each boiler was constructed after the rule applicability date of June 9, 1989, and has a maximum design heat input capacity greater than 10 mmBtu per hour and less than 100 mmBtu per hour. As such, the following shall apply:

- (1) The SO₂ emissions from each boiler shall not exceed five tenths (0.5) pounds per million Btu heat input when burning fuel oil; or
- (2) The sulfur content of the fuel oil shall not exceed five-tenths percent (0.5%) by weight. [40 CFR 60.42c(d)]

The Permittee shall demonstrate compliance utilizing one of the following options:

- (1) Providing vendor analysis of fuel delivered, if accompanied by a certification; or
- (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(g) 401 KAR 59:015, New Indirect Heat Exchangers

Pursuant to 401 KAR 59:015, Section 1, the requirements of this rule apply to each indirect heat exchanger having a heat input capacity of more than one (1) million Btu per hour and that commenced on or after the applicable classification date defined in Section 2 (3) of the rule. The maximum heat input capacity of each boiler at the source is greater than the rule applicability threshold. Therefore, 401 KAR 59:015 is applicable to the combustion units listed below, and the allowable particulate and sulfur dioxide (SO₂) emission limits are calculated as follows:

- (1) Pursuant to 401 KAR 59:015, Section 3(2), after an affected facility is assigned an allowable emission rate, no change at the source affecting the future total heat input rate shall affect the previously assigned allowable emission rate. Therefore, pursuant to 401 KAR 59:015, Section 4(1), and initial permit V-00-003, the particulate emission rate from each of the boilers EP12A, EP13A, EP13 B and EP14 is based on the following equation:

$$\text{PM Emission rate (lb/mmBtu)} = 0.9634 \times (\text{total heat input rating for the source})^{-0.2356}$$

Although Boiler-8850 (EP12) has been removed from the source during this review, its heat input rate of 12.553 mmBtu/hr is included in the prior total source heat input rate of 79.503 mmBtu/hr, and the allowable emission rate for each of EP12A, EP13A, EP13 B and EP14 is determined as follows:

$$\begin{aligned} \text{PM Emission rate} &= 0.9634 \times (79.503)^{-0.2356} \\ &= 0.343 \text{ lb/mmBtu} \end{aligned}$$

For Boiler BLR-8860 (EP 12B) rated at 33.50 mmBtu/hr and approved for construction in 2007 during this review:

$$\text{PM Emission rate} = 0.9634 \times (79.503 + 33.50)^{-0.2356}$$

$$= 0.325 \text{ lb/mmBtu}$$

- (2) Pursuant to 401 KAR 59:015, Section 5(1), SO₂ emission rate is based on the following equation for each boiler:

$$\text{SO}_2 \text{ Emission rate (lb/mmBtu)} = 7.7223 \times (\text{total heat input rating for the source})^{-0.4106}$$

For each of EP12A, EP13A, EP13 B and EP14:

$$\begin{aligned} \text{SO}_2 \text{ Emission rate} &= 7.7223 \times (79.503)^{-0.4106} \\ &= 1.28 \text{ lb/mmBtu} \end{aligned}$$

For Boiler BLR-8860 (EP 12B) rated at 33.50 mmBtu/hr and approved for construction in 2007 during this review:

$$\begin{aligned} \text{SO}_2 \text{ Emission rate} &= 7.7223 \times (79.503 - 12.553 + 33.50)^{-0.4106} \\ &= 1.16 \text{ lb/mmBtu} \end{aligned}$$

- (3) Pursuant to 401 KAR 59:015, Section 4(2), opacity of visible emissions from each boiler (EP 12A, 12B, 13A, 13B, and 14) shall not exceed twenty (20) percent except a maximum of forty (40) percent opacity shall be permissible for not more than 6 consecutive minutes in any 60 consecutive minutes during cleaning the fire box or blowing soot.

- (h) 401 KAR 61:015, Existing Indirect Heat Exchangers

This rule is applicable to existing indirect heat exchangers with a capacity of 250 mmBtu/hr or less and commencing before April 1972. None of the boilers at the source commenced before April 1972, therefore this rule does not apply.

- (i) 401 KAR 63:002, Section 2, requires affected sources to comply with the applicable Part 63 NESHAP, *40 CFR Part 63.7480 (Subpart DDDDD)*, “*National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*”

Boilers identified as BLR-8840, BLR-8860, BLR-8820, BLR-8830, and BLR-8810 (EP 12A, 12B, 13A, 13B and 14), burning natural gas as primary fuel and No. 2 fuel oil as secondary fuel, are subject to 40 CFR 63, Subpart DDDDD. Although each boiler has a maximum heat input capacity of greater than 10 mmBtu/hr, each unit is a firetube boiler and, therefore, is classified as a small gaseous fuel unit, per 40 CFR 63.7575(Definitions). Pursuant to 40 CFR 63.7506(c)(3), an existing small gaseous fuel unit (EP 12A, 13A, 13B and 14), as well as a new or reconstructed small gaseous fuel unit (EP12B), is not subject to the initial notification requirements in 40 CFR 63.9(b) and is not subject to any requirements in 40 CFR 63, Subpart DDDDD and Subpart A. Therefore, no provisions of this rule are included in the permit.

- (j) 401 KAR 60:005, Sections 2 and 3(1)(ddd) incorporates by reference *40 CFR Part 60.560 to 60.566 (Subpart DDD)*, “*Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry*”

The requirements of 40 CFR 60 Subpart DDD are included in the permit for Plant 2 (Impregnated Polystyrene Beads Production) because the plant produces polystyrene and was constructed after the rule applicability date of September 30, 1987. Pursuant to 40 CFR 60.560(a)(4), the VOC emissions from equipment leaks from the Polystyrene Beads Production operation are subject to the requirements of Subpart DDD; however, pursuant to 40 CFR 60.560(a)(2), the process emissions from the Polystyrene Beads Production operation are not subject to the requirements of Subpart DDD because the operation is a batch process and not a continuous process. The applicable Subpart DDD requirements are included in the permit.

Plant 1 (Polystyrene Pellets Production) and Plant 3 (Polystyrene Beads Production) are exempt from the requirements of 40 CFR 60, Subpart DDD since they are subject to the requirements of 40 CFR 63, Subpart JJJ, as stated under 40 CFR 63.1316(c).

- (k) 401 KAR 63:002, Section 3(xx) incorporates by reference *40 CFR Part 63.1310 to 63.1336 (Subpart JJJ)*, “*National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins*”

Plants 1 and 3:

Group 2 batch process vents:

The requirements of NESHAP, Subpart JJJ are included in the permit for Plant 1 (EP M11, M06, M06A) and Plant 3 (EP S06, S07, and S08) because the source is a major HAP source producing polystyrene beads. The emission points from Plant 1 and Plant 3 are batch operations consisting of Group 2 process vents, determined per 40 CFR 63.1323(b). Pursuant to 40 CFR 63.1323(d), a Group 2 batch process vent emits less than 11,800 kg/yr (26,007 lb/yr) of VOC or organic HAP emissions, and the permittee is required to comply with 40 CFR 63.1322(f) or (g).

- (1) The permittee shall be subject to the following operating and emission limitations for each batch process vent:
 - (i) Pursuant to 40 CFR 63.1322(f), the permittee of a Group 2 batch process vent with annual emissions greater than or equal to the level specified in 40 CFR 63.1323(d) (i.e. 11,800 kg/yr) shall comply with the provisions of 40 CFR 63.1322(f)(1), (f)(2), or (h).
 - (ii) Pursuant to 40 CFR 63.1323(g), the permittee of a Group 2 batch process vent with annual emissions less than the level specified in 40 CFR 63.1323(d) (i.e. 11,800 kg/yr) shall comply with the provisions of 40 CFR 63.1322(g)(1), (g)(2), (g)(3) or g(4).
- (2) The permittee shall determine compliance with the batch mass input limitation as specified in 40 CFR 63.1325(g).
- (3) The permittee shall comply with the Record Keeping requirements as specified in 40 CFR 63.1326.
- (4) The permittee shall comply with the Reporting requirements as specified in 40 CFR 63.1327.

Group 2 continuous process vents:

The requirements of NESHAP, Subpart JJJ are included in the permit for Plant 1 (EP M07) because the source is a major HAP source producing polystyrene pellets. Plant 1 (EP M07) is a continuous operation comprised of Group 2 process vents.

- (1) Pursuant to 40 CFR 63.1316(c), the permittee comply with the requirements specified in 40 CFR 63.1316(c)(1) through (c)(3):
 - (i) Pursuant to 40 CFR 63.1316(c)(1), the permittee shall limit organic HAP emissions from all continuous process vents in the collection of material recovery sections within the affected source by complying with either 40 CFR 63.1316(c)(1)(i), (c)(1)(ii), or (c)(1)(iii). Dart has chosen to comply with 40 CFR 63.1316(c)(1)(i) which requires organic HAP emissions from continuous process vents in each individual material recovery section shall, as a whole, be no greater than 0.0036 kg organic HAP per Mg of product from the associated thermoplastic product process unit(s) (TPPU(s)); or alternatively, organic HAP emissions from all continuous process vents in the collection of material recovery sections within the affected source shall, as a whole, be no greater than 0.0036 kg organic HAP per Mg of product from all associated TPPU(s).
 - (ii) Pursuant to 40 CFR 63.1316(c)(2), the permittee shall limit organic HAP emissions from continuous process vents not included in a material recovery section, as specified in 40 CFR 63.1316(c)(1)(i), by complying with 40 CFR 63.1315.
 - (iii) Pursuant to 40 CFR 63.1316(c)(3), the batch process vents shall comply with 40 CFR 63.1321.
- (2) Pursuant to 40 CFR 63.1318(c), the permittee shall determine compliance with mass emissions per mass product standard as specified in 40 CFR 63.1318(b)(1).
- (3) Pursuant to 40 CFR 63.1317, the continuous process vents complying with 40 CFR 63.1316 shall comply with the applicable monitoring provisions specified in 40 CFR 63.1315(a). Pursuant to 40 CFR 63.1315(a), the permittee of each continuous process vent located at an affected source, shall comply with the requirements of 40 CFR 63.113 through 63.118. However, pursuant to 40 CFR 63.113, the permittee is not subject to the requirements of 40 CFR 63.114 through 63.118, therefore, there are no compliance monitoring requirements applicable to the continuous Group 2 process vents.
- (4) Pursuant to 40 CFR 63.1319, the continuous process vents complying with 40 CFR 63.1316 shall comply with the applicable recordkeeping provisions specified in 40 CFR 63.1315. Pursuant to 40 CFR 63.1315(a), the permittee of each continuous process vent located at an affected source, shall comply with the requirements of 40 CFR 63.113 through 63.118. However, pursuant to 40 CFR 63.113, the permittee is not subject to the requirements of 40 CFR 63.114 through 63.118, therefore, there are no recordkeeping requirements applicable to the continuous Group 2 process vents.
- (5) Pursuant to 40 CFR 63.1320, the continuous process vents complying with 40 CFR 63.1316 shall comply with the applicable reporting provisions specified in 40 CFR 63.1315. Pursuant to 40 CFR 63.1315(a), the permittee of each continuous process vent located at an affected source, shall comply

with the requirements of 40 CFR 63.113 through 63.118. However, pursuant to 40 CFR 63.113, the permittee is not subject to the requirements of 40 CFR 63.114 through 63.118, therefore, there are no reporting requirements applicable to the continuous Group 2 process vents.

Plant 2:

The requirements of NESHAP, Subpart JJJ are applicable to the affected TPPUs producing expanded polystyrene (EPS) at Plant 2 (Impregnated Polystyrene Beads Production). However, pursuant to 40 CFR 63.1310(c)(5), vessels and equipment storing and/or handling material that contains no organic HAP and/or organic HAP as impurities only, are not subject to the requirements of Subpart JJJ or Subpart A of 40 CFR Part 63. EPS contains styrene as an *impurity*, as such is defined at 40 CFR 63.101, and therefore no provisions of Subpart JJJ are included in the permit for Plant 2.

Wastewater Streams:

Initial TV Permit No. V-00-003, issued on June 4, 2001, contained a Section B for wastewater streams from Plant 1 (Mass Plant) and Plant 3 (Suspension Plant). The wastewater provisions of 40 CFR 63.1330(a), (b) and (c) were determined as not applicable since each affected source produced polystyrene using either a continuous or batch process. Such determination, as provided at 40 CFR 63.1330(e), remains unchanged in this renewal permit. As such, the Division has decided to eliminate Section B for wastewater streams.

Storage Tanks:

Pursuant to 40 CFR 63.1314(a), each storage vessel assigned to an affected source shall comply with the requirements of 40 CFR 63.119 through 63.123. However, pursuant to 40 CFR 63.1314(d), storage vessels containing styrene at existing affected sources are not subject to the requirements of NESHAP, Subpart JJJ.

Storage tanks identified as EP M01, M09, S01, S02, S03, S04, S05, X01, and X02, all store styrene and are at existing affected sources; therefore they are not subject to the requirements of NESHAP, Subpart JJJ pursuant to 40 CFR 63.1314(d).

Storage tanks identified as EP M02, M03, M04, and M05, each storing rubber solution is subject to the requirements of 40 CFR 63.119 through 63.123 as specified in 40 CFR 63.1314. However, pursuant to 40 CFR 63.119(a), for Group 2 storage vessels which are not part of an emissions average (as described in 40 CFR 63.150), the permittee shall only comply with the record keeping requirements as specified in 40 CFR 63.123(a) and is not required to comply with any other provisions in 40 CFR 63.119 through 63.123. According to 40 CFR 63.123(a), the permittee shall keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. These records shall be kept as long as the storage vessel retains Group 2 status and is in operation.

Storage tank identified as EP 09 (02), and several small day tanks as insignificant activities, each containing the non-organic HAP hydrochloric acid (in solution), are not subject to Subpart JJJ pursuant to 40 CFR 63.1310(c)(8).

Fugitive Emissions:

Pursuant to 40 CFR 63.1331(a), the HAP emissions from equipment leaks shall be subject to the requirements specified in 40 CFR 63.160 through 63.183 (Subpart H) with differences noted in 40 CFR 63.1331(a)(1) through (a)(10). According to 40 CFR 63.160(a), each process and storage pipeline equipment including light liquid pumps, gas valves, gas flanges, gas open ended valves, gas PSVs, liquid valves, and liquid flanges at Plant 1 and Plant 3 (EP 07) producing polystyrene pellets and beads, shall comply with all applicable requirements, as specified in the permit

Plant 2 is not subject to the requirement of 40 CFR 63, Subpart H since it is not subject to 40 CFR 63, Subpart JJJ and does not produce any of the chemicals listed in 40 CFR 63.100(b)(1).

Take Off Lines Vent:

The Take Off Line is a finishing step that occurs after polymerization is complete and involves extrusion of the polystyrene in to strands. Take Off Lines vents (EP M08A and EP M08B) in Plant 1 (Mass Plant) are exempt from the requirements of 40 CFR 63, Subpart JJJ, pursuant to 40 CFR 63.1310(d)(4).

Entire Plant:

Affected sources in Plant 1 (EP 07) and Plant 2 (EP 08) under NESHAP, Subpart JJJ shall comply with the general recordkeeping and reporting provisions as specified in 40 CFR 63.1335.

- (1) 401 KAR 63:002, Sections 2 and 3(1)(III), incorporates by reference *40 CFR 63.2330 to 63.2406 (Subpart EEEE), "National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)"*

This rule applies to storage tanks, transfer racks, transport vehicles, containers, and equipment leak components that exist at a major HAP source. The standards contained in this rule only apply to units that use or emit organic HAPs. Pursuant to 40 CFR 63.2406, organic liquids do not include gasoline, kerosene, No.2 distillate oil and heavier distillate oils and fuel oils; therefore, fuel oil and gasoline storage tanks at this source are not subject to this rule.

Pursuant to 40 CFR 63.2338(c)(1), sources that are affected sources under another NESHAP rule are exempt from the requirements of Subpart EEEE. Therefore storage tanks (EP M02, M03, M04, and M05) and equipment leak components for Plants 1 and 3 (EP 07) and Plant 2 (EP 08), which are subject to 40 CFR 63 Subpart JJJ, are exempt from the requirements of 40 CFR 63 Subpart EEEE.

Storage tanks identified as (EP M01, M09, S01 through S05, X01, and X02) are also not subject to the requirement of 40 CFR 63, Subpart EEEE because the abovementioned storage tanks are an affected source under 40 CFR 63, Subpart JJJ.

One Styrene Bulk Truck Loading operation identified as insignificant activity is

subject to the requirements of 40 CFR 63, Subpart EEEE because this source is a major source for HAPs and an existing facility where the total actual annual facility-level organic liquid loading volume through the loading operation is equal to or greater than 800,000 gallons and organic HAP content of the organic liquid being loaded is at least 98 percent by weight. The Styrene Bulk Truck Loading operation shall comply with the all applicable requirements, as contained in the permit.

(m) 401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*

Pursuant to 401 KAR 63:020, Section D, no owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants.

During initial TV permit review, the Division determined that process and non-process equipment at Plant 3 - Suspension Plant that is not subject to 40 CFR 63, Subpart JJJ (collectively as EP 09), shall comply with this rule. The affected equipment includes:

3. Two (2) Suspension Batch out Tanks TK-102 and TK-103, Stack: Roof Vent
4. 12,500 gallon Hydrochloric Acid Storage Tank TK-6100

The Division has determined that the source shall comply with this rule by ensuring that the hydrochloric acid solution shall be added to the tank via submerged fill pipe only for TK-102 and TK-103; and the HCl storage tank (TK-106) shall always vent through a packed column scrubber. Related monitoring and operating requirements are included in the permit.

(6) Non-Applicable Regulations:

- (a) 401 KAR 60:005, Sections 2 and 3(ooo) incorporates by reference *40 CFR Part 60.700 to 60.708 (Subpart RRR), "Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes"*

The requirements of 40 CFR 60, Subpart RRR are not included in the permit because the source does not produce any of the chemicals listed in 40 CFR 60.707 as a product, co-product, by-product, or intermediate.

- (b) 401 KAR 63:002, Sections 2 and 3(1)(mmm), incorporates by reference *40 CFR 63.2430 to 63.2550 (Subpart FFFF), "National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing"*

The requirements of 40 CFR 63, Subpart FFFF are not included in the permit because the source is part of an affected source under another subpart of 40 CFR 63, i.e. Subpart JJJ as specified in 40 CFR 63.2435(b)(3).

- (c) 401 KAR 63:002, Sections 2 and 3(1)(d), incorporates by reference *40 CFR 63.100 to 63.107 (Subpart F), "National Emission Standards for Organic Hazardous Air"*

Pollutants From the Synthetic Organic Chemical Manufacturing Industry"

The requirements of 40 CFR 63, Subpart F are not included in the permit because the source does not manufacture as primary product any of the chemicals listed in 40 CFR 63.100(b)(1).

- (d) 401 KAR 63:002, Sections 2 and 3(1)(e), incorporates by reference *40 CFR 63.110 to 63.153 (Subpart G), "National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater"*

The requirements of 40 CFR 63, Subpart G are not included in the permit because the source does not manufacture as primary product any of the chemicals listed in 40 CFR 63.100(b)(1).

- (e) 40 CFR 64, *Compliance Assurance Monitoring (CAM)*

The requirements of 40 CFR 64, *Compliance Assurance Monitoring*, are not included in the permit for any emission unit at this source because no emission unit at this source has an uncontrolled PTE particulate matter at greater than 100 percent of the applicable major Part 70 threshold. Therefore, pursuant to 40 CFR 64.2 (a), the requirements of this rule are not included in the permit.

- (f) 401 KAR 61:175, *Leaks from existing synthetic organic chemical and polymer manufacturing equipment*

The permittee is not subject to this rule because the source is not located in a county (Daviess) designated nonattainment for ozone under 401 KAR 51:010.

EMISSION AND OPERATING CAPS DESCRIPTION:

- (a) This source elected to accept the following emission limits in order to preclude the applicability of 401 KAR 51:017, *Prevention of Significant Deterioration of Air Quality (PSD)* for volatile organic compounds (VOC) as permitted in Minor Permit Revision, Log # 55337/55642, issued on December 19, 2003.

The total VOC emissions from the modification to Plant 2 – Impregnated Polystyrene Beads Production (EP 10) involving the de-bottle necking project (defined as MODIFICATION 01 (emission units 2, 3, 5 and 6) under permit Section B for EP 10) shall not exceed 10.51 tons per twelve (12) consecutive month period based on the Carbon Adsorber VOC emissions control efficiency of 95%. The VOC emissions shall always be vented to the Carbon Adsorber in order to comply with the emission limit.

- (b) This source elected to accept the following emission limits in order to preclude the applicability of 401 KAR 51:017, *Prevention of Significant Deterioration of Air Quality (PSD)* for volatile organic compounds (VOC) as approved upon issuance of this permit Number V-06-046.

The total VOC emissions from the modification to Plant 2 – Impregnated Polystyrene Beads Production (EP 10) involving the Plant 2 expansion (defined as MODIFICATION 02 (emission units 7, 8, 9 and 10) under permit Section B for EP 10) shall not exceed 26.6 tons per twelve (12) consecutive month period based on the Carbon Adsorber VOC emissions control efficiency of 95%. The VOC emissions shall always be vented to the Carbon Adsorber in order to comply with the emission limit.

PERIODIC MONITORING:

To demonstrate compliance with the VOC PSD minor limit, the permittee shall monitor the Carbon Adsorber controlling VOC emissions from Plant 2 – Impregnated Polystyrene Beads Production. Detailed requirements for monitoring can be found under *Sections B* of the permit.

Monitoring requirements for other emission units including storage tanks, process vents, equipment leaks and boilers, pursuant to 40 CFR 63, Subpart JJJ and 40 CFR 60, Subpart DDD, are also listed in detail in the corresponding *Sections B* of the permit.

Monthly VOC equipment leak checks are required for system components in each production area, and the methods shall continue to follow 40 CFR 63, Subpart H (pursuant to 40 CFR 63, Subpart JJJ).

OPERATIONAL FLEXIBILITY:

None

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.